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May 28, 1992

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Ms. Donna Searcy
The Secretary
Federal Communications Commission
Washington, D.C. 20554

Dear Ms. Searcy;

On behalf of North American Teletrac and Location
Technologies, Inc., please accept the attached Petition for
Rulemaking for filing on this date.

Sincerely,

WINTHROP, STIMSON, PUTNAM &
ROBERTS
Counsel for Petitioners

By:


LynDee Wells

#A0031124

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BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C.

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MAY 28 1992

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Amendment of Section 90.239)
of the Commission's Rules to)
Adopt Permanent Regulations for)
Automatic Vehicle Monitoring)
Systems)

RM No. _____

To: The Commission

PETITION FOR RULEMAKING

NORTH AMERICAN TELETRAC
AND
LOCATION TECHNOLOGIES, INC.

Dated: May 26, 1992

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APPENDIX 1: PROPOSED RULES

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ATTACHMENT J: Letters from Commander James L. Harris,
7/8/91; District Attorney Ira Reiner,
10/8/91; Steven Cohen, 11/18/91; Chief
William Dwyer, 11/20/91; Commander Roy L.
Newman, 12/16/91; Special Agent Delbert N.
Dilbeck, 12/18/91

ATTACHMENT K: Trimble News Release, 3/2/92

EXECUTIVE SUMMARY

North American Teletrac and Location Technologies, Inc., through their joint venture PacTel Teletrac ("Teletrac"), have deployed state-of-the-art wideband pulse-ranging Automatic Vehicle Monitoring ("AVM") systems in Chicago, Dallas, Detroit, and Los Angeles that far outpace earlier envisioned technologies. Today, Teletrac's system can provide up to six million location requests per day and provide a broad array of services. (§§ 1 - 9).

Stolen vehicles can be located before the thief can strip or damage the car. Businesses are able to increase efficiency and reduce costs by using AVM systems that can track the precise location of their fleets. Law enforcement and public safety personnel now have additional tools to assist in the rapid solution of vehicle-related crimes. Indeed, this technology has already reduced the cost of automobile insurance by reducing risk. (§§ 10 - 19).

The Federal Communications Commission adopted "interim" AVM rules in 1974. AVM technology and marketplace demands have now evolved to the point that interim rules are no longer appropriate and, in fact,

inhibit further development of this technology which today provides significant benefits to the public. (§§ 20 - 21).

Permanent rules must be adopted because the interim rules: (1) inadequately describe current technical specifications and authorization procedures; (2) make inadequate provisions for avoiding interference problems; (3) limit innovation; and, (4) discourage investment in AVM technology. (§§ 22 - 25).

Teletrac's proposed permanent rules address all of these problems. The major provisions proposed include expanding the definition of AVM to allow AVM technology to be used for location of persons and objects in addition to vehicles. (§ 27). Teletrac also proposes that the permanent rules continue to permit only wideband pulse-ranging systems to be licensed in the 904-912 MHz and 918-926 MHz bands that are currently allocated to wideband pulse-ranging AVM systems. (§ 28). In addition, narrowband systems -- those utilizing 1 MHz or less -- should continue to be licensed in the 903-904 MHz and 926-927 MHz bands but the current developmental designation should be removed from those bands. (§ 31).

Teletrac further proposes co-channel separation between wideband pulse-ranging AVM systems to minimize interference problems and promote technical flexibility. (§§ 32 - 47). Teletrac also proposes ten year licenses for multiple system licensees -- those with more than ten

licenses -- in order to assure licensees sufficient time to build out these systems throughout the United States. As an alternative, Teletrac proposes a buildout requirement similar to those used by the Commission for other services. (¶¶ 48 - 51).

Teletrac also proposes that current licensees be permitted to continue, i.e., they should be "grandfathered in." For example, narrowband license holders granted licenses in the wideband frequency band should be able to continue in their current assigned frequencies and not be required to move to the frequency designated for narrowband systems. (¶¶ 52 - 53).

The Commission should move swiftly and issue a Notice of Proposed Rulemaking to incorporate the permanent rules recommended by Petitioner. Expedited action will allow for further expansion of the AVM technology and marketplace thereby benefitting millions of consumers as well as the public service, business and transportation sectors of the United States economy.

INTRODUCTION

Pursuant to 47 C.F.R. § 1.401(a) (1991), North American Teletrac ("NAT") and Location Technologies, Inc. ("LT") doing business through the joint venture Pactel Teletrac ("Teletrac"), request the Federal Communications Commission ("FCC" or "Commission") to adopt permanent rules governing Automatic Vehicle Monitoring ("AVM") systems operating in the 904-912 MHz and 918-926 MHz segments of the Industrial, Scientific, and Medical ("ISM") band.

Teletrac operates AVM systems under licenses issued to NAT/LT pursuant to the interim AVM rules adopted in 1974.^{1/} 47 C.F.R. § 90.239 (1991). Over the past eighteen years, the AVM industry has evolved far beyond the technological boundaries envisioned in 1974. Teletrac has invested tens of millions of dollars in deploying state of the art AVM technology that has been brought to commercial reality in Chicago, Dallas, Detroit and Los Angeles where already-operating Teletrac systems have the capacity to serve millions.

1. Report and Order, Inquiry As To Automotive Vehicle Locator Systems in the Land Mobile Radio Services, 30 RR 2d 1665, 1667 (1974) ("1974 Report and Order").

Permanent rules are now necessary to assure the continuing enhancement of this innovative and commercially accepted technology. Without permanent rules that minimize the interference generated by co-channel AVM systems operating in this band, the scarce spectrum available for this service increasingly will be used inefficiently. Indeed, the present interim rules make it unlikely that Teletrac will be able to provide new services that the technology will be capable of in the near future.

The permanent rules will build on the foundation laid by the interim rules. They will permit AVM providers to offer increased capacity and location accuracy. Consumers will receive the benefits of a low cost mass market service. In short, the permanent AVM rules Teletrac recommends will provide the marketplace certainty necessary to permit continued dynamic growth.

I. BACKGROUND.

1. The FCC's 1974 interim AVM rules^{2/} were intended to promote development of automatic vehicle monitoring systems operating in the 900 MHz region:

In this early stage of development, the rule changes being adopted are necessarily only interim provisions that incorporate tentative standards for conforming AVM systems to present land mobile operations/requirements and allow for continued technological advancement in the different techniques involved.^{3/}

One of the Commission's objectives was to allow "full scope for the development of AVM techniques."^{4/}

2. The objectives identified in 1974 have been achieved successfully. Teletrac has developed and commercially implemented its innovative systems under those interim rules. Teletrac systems today provide consumers, commercial and government customers with

2. The interim AVM rules define "Automatic Vehicle Monitoring" as the use of non-voice signalling methods "from and to vehicles to make known at fixed points the location of the vehicles." 47 C.F.R. § 90.7 (1991). Status and instructional messages are also permitted. Id. The interim rules also prescribe certain technical operational requirements. See 47 C.F.R. § 90.239 (1991).

3. 1974 Report and Order, 30 RR2d ¶5 at 1667.

4. Id. ¶10 at 1670.

reliable, effective AVM services which we describe below. Teletrac AVM systems are operational in four major metropolitan areas and are in the final construction phase in two other major metropolitan areas. With the adoption of the permanent rules Teletrac recommends, new systems and services will further expand the AVM marketplace so that millions of customers can benefit from Teletrac's state of the art AVM technology.

3. AVM's growth and its continuing ability to attract capital at reasonable cost require more regulatory certainty. This goal will only be accomplished if the 1974 interim rules are replaced by permanent rules that reflect the technological and marketplace changes that have occurred since 1974. We describe each of these points below.

A. The Technological and Marketplace Changes.

4. Since 1974, the development of cost efficient semiconductor devices to operate radio systems at 900 MHz has permitted system designs that would have been either technologically impossible or economically impractical in 1974. For example, Teletrac's radiolocation unit would

have been significantly larger in size and so expensive as to make the technology commercially unusable in 1974.

5. There has also been marketplace experience with AVM systems. Teletrac has used the 900 MHz band to develop and deploy its commercial wideband pulse-ranging technology.^{5/} In addition, there are a number of other vehicle location technologies. Several of these services - - e.g. the Global Positioning System^{6/}, Loran C and Private Satellite/Low Earth Orbit Satellite -- provide location services for transportation fleets over wide areas.^{7/} Teletrac, however, is the first to offer low cost, mass consumption AVM that allows consumers to obtain stolen vehicle location^{8/} and corporate fleet tracking with panic button capability.

5. Three other entities hold licenses for wideband AVM systems: METS, Inc., METS/Ameritech, and Roger D. Linguist. However, none of these systems appear to be in commercial operation at this time.

6. See, e.g., Trimble News Release, Attachment K.

7. Cellular providers and equipment suppliers are currently testing the feasibility of radio location employing TDMA or CDMA techniques.

8. LoJack currently offers equipment that will permit specially equipped law enforcement vehicles to detect signals emitted by transmitters in stolen vehicles of LoJack customers. This technology uses direction finding and is not licensed in the AVM band.

B. Teletrac's Technology and Business.

6. The Teletrac system provides wide area metropolitan coverage using multiple receive sites, thereby giving the user instantaneous location information. Low cost, highly reliable radio location units significantly expand the number and type of potential users who can benefit from AVM technology.^{9/}

7. The Teletrac system is composed of various components. A network control center (NCC) is the brain of the system, computing the locations of the vehicles, and managing communications with radio sites and end users. A forward link sends commands to the radiolocation units (RLUs). The RLUs transmit a wideband signal received at various radio sites which, after processing, is relayed back to the NCC for position calculation.

8. For stolen vehicles, location requests are initiated by an emergency signal that is emitted from the vehicle when it is stolen. For corporate fleet tracking, location requests are generated at a workstation by sending

9. Unlike navigation units such as Loran C or GPS, which calculate position in the vehicle, Teletrac calculates position in the fixed network, significantly reducing the complexity and cost of the radiolocation unit placed in the vehicle.

a message to the NCC. In either case, the NCC sends a message out over the forward link, addressing the unit whose location is sought. The RLU in that vehicle then transmits a wideband pulse, whose time of arrival is precisely computed at several fixed receive sites. This timing information is used to calculate the location of the vehicle. The location information is then relayed back to the workstation. This entire process takes place in seconds.

9. Every Teletrac system operates on the 904-912 MHz band using highly efficient, digital wideband pulse-ranging technology.^{10/} Each system can serve up to sixteen million RLUs and handle up to six million location requests per day in a specific geographic area -- or roughly 4,000 location requests per minute. This large capacity reduces the user cost, making the technology available to a vast array of consumers, each with different needs. Some of the significant uses are set forth below.

10. The interim rules permit only wideband systems using pulse-ranging technology to operate in the 904-912 MHz and 918-926 MHz bands. See 47 C.F.R. § 90.239(c)(1) (1991).

1. Corporate Fleet Tracking.

10. Highway transportation expenditures account for a substantial percentage of the gross domestic product in the United States.^{11/} Even a slight improvement in this sector can improve the competitiveness of U.S. companies and reduce consumer costs. AVM can enhance the organization and management of all types of transportation operations -- a key policy goal of the United States.^{12/} The United States Department of Transportation has identified vehicle location technology as an example of how advanced telecommunications technology can assist in more effectively managing our transportation resources.^{13/}

11. Teletrac's Corporate Fleet Tracking Service enables commercial customers to monitor the locations of

11. U.S. Bureau of the Census, Statistical Abstract of the United States: 1991 (111th ed.), Washington, D.C. (1991), Table 1019, p. 602. Depending on the measure used, this figure has been as high as \$270 billion which accounted for over five percent of the gross domestic product in 1988.

12. See "Moving America - New Directions, New Opportunities, A Statement of National Transportation Policy", United States Department of Transportation, February 1990 ("The DOT Report").

13. The DOT Report notes that while the United States has been the world leader in this area, "we have only just begun to tap the potential of electronics to help route vehicles more efficiently and safely." Id. at 18.

their vehicles and respond to requests for service by tracking their vehicle fleets on computerized maps. This allows more efficient management of service and transportation fleets. With vehicle location information, fleet dispatchers can quickly route the closest available vehicle to a service call, provide customers with precise pick up and delivery times, provide increased security for drivers, passengers and cargo, maintain a record of routes, and reduce fuel consumption thereby benefitting the environment. With AVM systems like Teletrac, the efficiency of businesses can be improved:

Teletrac has greatly helped EXECUTONE improve the efficiency of our business. One such example is the improvement in our ability to service our customers with replacement parts. EXECUTONE keeps a computerized record of our vehicles' replacement parts inventory. By using the Teletrac System, we can locate vehicles that carry a needed part and establish which one is nearest to a customer. This allows us to provide timely response to a customer having problems with their phone system.^{14/}

14. Letter from Gerald N. Quindt, Operations Manager, EXECUTONE, City of Industry, CA, to John Polcari, International Teletrac Systems, Inc., 12/3/91 (Attachment A).

The Fleet Tracking Service also provides a "panic button" feature allowing the vehicle occupant to signal when emergency assistance is needed, permitting rapid responses.

12. Teletrac systems can also reduce the cost of insurance, making companies more competitive. One Teletrac Los Angeles customer reported recently:

On November 1st, our broker quoted the new rates for our insurance. Due almost exclusively to Teletrac and our ability to document the activities of our vehicles, we realized a savings on not only the automotive portion of the insurance but a significant consideration was given to the liability section as well. In an environment where costs are consistently rising, we have realized savings of over \$6,000 per year on our general insurance premiums.^{15/}

13. Teletrac's Corporate Fleet Tracking Service also has other applications. For example, the Los Angeles County Office of Education found that Teletrac improved the efficiency of the school bus fleet:

Transportation services the county office provides to school districts throughout the 4,000 square mile area of Los Angeles county has improved significantly since we've installed the Teletrac system. This is due in large part to the fact that we know the

15. Letter from H. Coapt Galland, President and General Manager, Superior Signal Service to Ned Carey, International Teletrac, November 24, 1991. (Attachment B).

exact location of contract school buses at all times.

Our emergency planning for earthquakes and other disasters has been aided by utilizing the Teletrac system, giving us the exact location of our buses in the event of an emergency.^{16/}

This Teletrac service also allows more efficient and convenient transportation services for the elderly and handicapped.^{17/}

2. Stolen Vehicle and Emergency Road Service.

14. A vehicle is stolen every 20 seconds in the United States.^{18/} More than 1.6 million vehicles were stolen in 1990, amounting to over \$8 billion, including approximately \$1 billion in related law enforcement expenses.^{19/} The Teletrac system helps to combat this type of crime by immediately locating its customers'

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16. Letter from Charles Devlin, Transportation Officer, Los Angeles County Office of Education to Mark Rich, International Teletrac, November 22, 1991. (Attachment C).
17. Id.; Letter from David Gualino, Director of Maintenance, Diversified Paratransit, Inc. to Mark Rich, International Teletrac, November 25, 1991 (Attachment D).
18. National Insurance Crime Bureau Information Bulletin, August 11, 1991, at 1 (citing FBI's 1990 Uniform Crime Reports).
19. Id.

vehicles if they are stolen by alerting NCC personnel who track the car on a digitized map. Because this process is automatically initiated by the theft of the vehicle, the car is likely to be recovered before it has been stripped or damaged.^{20/}

15. There were over 21 million emergency road service calls to the American Automobile Association in 1990.^{21/} With Teletrac AVM technology, the vehicle occupant will be able to use the panic button feature to inform Teletrac's NCC of the car's location for quick and efficient emergency response.

3. Law Enforcement.

16. Teletrac technology has already been of assistance to law enforcement and public safety officials. For example, the Police Department of the City of Evanston, Illinois is working with Teletrac's Chicago system,

20. See, e.g., Letter from Rick Hernandez, President, Hernandez Cart Service, Inc. to Mark Rich, International Teletrac, Inc., 4/2/92 (Attachment E).

21. Personal communication with Jim Coppinger, Emergency Services Manager, American Automobile Association National Headquarters, Heathrow, Florida, March 31, 1992.

installing Teletrac units in police vehicles and conducting theft simulations. According to the Evanston police:

In each case, our personnel have been able to locate the stolen vehicle. In the last couple of cases, we located the vehicle within three minutes of receiving the report of the stolen vehicle.^{22/}

17. In Livonia, Michigan, the Police Department has used Teletrac to assist in a narcotics trafficking investigation. "The capabilities of Teletrac were just what we needed to assure a successful conclusion to that very important case."^{23/} And in Los Angeles, California, the police recently were able to quickly locate and arrest "carjackers" in separate instances using the Teletrac system.^{24/}

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22. Letter from Lieutenant George L. Scharm, Technical Services Division, City of Evanston Police Department to Louis F. Schoenfeldt, International Teletrac Systems, December 5, 1991. (Attachment F).
23. Letter from Inspector Joseph A. Koenig, Assistant Division Commander, Livonia Police Department to Charles Shropshire International Teletrac Systems, November 22, 1991. (Attachment G).
24. Letter from Phillip Bailey to Arnold Peller, International Teletrac Systems, April 2, 1992; Letter from William W. Johnston, President Record Transport, Inc. to Ned Carey, International Teletrac Systems, November 23, 1991. (Attachment H).

18. Indeed, Teletrac has assisted law enforcement officials to solve major crimes where the vehicle is incidental to the criminal act. For example, Teletrac assisted the Los Angeles County Sheriff's Office to apprehend a child molester.^{25/} "Given the type of individual that [the special police unit] was following, a dawn to dusk surveillance would probably not have been successful without the use of a vehicle tracking device."^{26/} These and other descriptions of Teletrac's increasing assistance in reducing crime are contained in Attachment J.

4. Personal Locator Service.

19. If the permanent rules reflect our proposals, in the near future Teletrac will be able to offer an innovative Personal Locator Service so that lost children, mentally or emotionally impaired patients and others can be located quickly. This Teletrac service can also be used by law enforcement officials to monitor the locations of officers outside a vehicle. The Personal Locator Service

25. Letter from Gary L. Anderson, Acting Chief, Field Operations, Los Angeles County Sheriff's office to Mark Licht, International Teletrac, July 8, 1991. (Attachment I).

26. Id.

will incorporate the panic button feature so that appropriate personnel can be alerted in the event of an emergency or physical attack.

20. In sum, modern AVM technology developed by Teletrac enables consumers, businesses and government to increase efficiency and reduce costs. In addition, AVM technology reduces anxieties caused by high crime rates and alleviates concerns about loved ones and business associates who are on the road or outside the home. It allows public officials to increase their capabilities to respond to emergencies quickly and efficiently. Further, it can drastically reduce the number of auto thefts by assisting police to quickly apprehend car thieves while they are still in the car.

**II. PERMANENT AVM RULES WILL ACHIEVE
SIGNIFICANT PUBLIC BENEFITS.**

21. The 1974 rules were interim because of the uncertainty surrounding the future direction of AVM technology -- i.e., the technical capabilities of and the market demand for AVM services were not known.^{27/} The Commission permitted wideband pulse-ranging AVM systems in

27. 1974 Report and Order, 30 RR2d ¶5 at 1667.

two distinct 8 MHz-wide frequency bands only, 904-912 and 918-926 MHz,^{28/} while also allowing for development of narrowband systems.^{29/} The wideband allocation was largely ignored until Teletrac began its commercial operations.

22. In 1974, AVM systems were not given unallocated, virgin spectrum in which to develop and flourish. Two primary users, Government Radiolocation and ISM, had equipment operating in the 902-928 MHz band and were accorded preference over AVM. In addition, countless Part 15 and amateur radio users operate in the same band on a secondary basis to AVM licensees. Consequently, this band has presented a continuing challenge to any company wishing to establish a viable commercial AVM operation in this spectrum.

23. As the technology has evolved, limitations of the interim rules have become significant impediments to the continued development of AVM technology. Five principal inadequacies are apparent:

28. AVM systems were also authorized on frequencies below 512 MHz under specified conditions.

29. There are approximately ten entities licensed for narrowband AVM systems.

-- First, the interim rules lack modern technical specifications and equipment authorization procedures. One example of the problem created occurs if RLUs drift off frequency or emit spurious emissions and thereby cause interference to other services. As a result, the Commission's enforcement program might be hampered by the lack of equipment authorization procedures.

-- Second, absent rules designed to minimize interference between co-channel, wideband pulse-ranging AVM systems, it is likely that harmful interference will occur as systems proliferate. Such interference will degrade the performance of existing systems, thus limiting the ability of suppliers to guarantee the future quality of their service. The potential for such interference reduces the incentives for investment in this service.

-- Third, the interim rules do not provide for a standardized frequency for a forward link. Absent a standardized frequency for the forward link, however, interference could result that will degrade system performance. This in turn could stifle the development of new services and reduce the quality of existing services. Additionally, standardization of forward links will enable equipment suppliers to exploit greater economies of scale and thereby lower costs to consumers.

-- Fourth, the interim rules only provide for locating vehicles. However, technology has advanced far beyond vehicle location as its only use. Thus, the interim rules hinder innovation.

-- Fifth, the interim rules, simply because they are interim, discourage large scale investment in deployment of AVM technology. Service providers are reluctant to invest when the regulatory regime is unclear. Equipment manufacturers may be reluctant to commit resources to large scale development and production in an uncertain regulatory environment. In short, regulatory uncertainty leads to marketplace uncertainty.

24. Permanent rules can provide the regulatory certainty to promote AVM's growth. These rules will minimize interference potential, provide certainty to vendors and system operators, and give the consumer the benefits of new services.

25. Modern AVM systems will make significant contributions to the United States economy. The United States will be at the forefront of this modern AVM technology, with American companies positioned to introduce AVM worldwide. Further, AVM can increase productivity,